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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,812	05/31/2001	Kazuto Okazaki	4296-138 US	1256

7590 08/10/2005

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EXAMINER

DUONG, THANH P

ART UNIT PAPER NUMBER

1764

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,812

Applicant(s)

OKAZAKI ET AL.

Examiner

Tom P. Duong

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1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15, 17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 15, 17 and 19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 30, 2005 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 15, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohrui et al. '423 in view of Sato et al. '045 and Brewer '032 and Lamberti '632. Regarding claim 15, Ohrui discloses an apparatus (Fig. 1) for treating of a waste gas (Abstract) containing combustible compounds (Col. 1, lines 9-17) comprising: a catalytic oxidation reactor (15) for the treatment of the waste gas; at least a first pre-heater device (16); a heat recovery device (18) for recovering heat from treated gas emanating from the reactor (Col. 6, lines 6-7). Ohrui discloses the waste gas (1) and air containing oxygen (19) are being supply to the heat exchanger (16) but fails to disclose a device for supplying the waste gas and a molecular oxygen-containing gas supplying device to the reactor. Sato teaches a device (booster fan 2) and a

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molecular oxygen containing as supplying device (air supplying fan 10) for supplying and/or facilitating the transfer of waste gas and oxygen to the heat exchanger (16).

Thus, it would have been obvious in view of Sato to one having ordinary skill in the art to modify the apparatus of Ohruai with a device for supplying the waste gas and with a device for supplying oxygen-containing gas to the reactor as taught by Sato in order to facilitate the transfer of waste gas and oxygen to heat exchanger. Ohruai also fails to disclose a second pre-heater device for heating the waste gas prior to its entry into the reactor. It would have been obvious in view of Ohruai to one having ordinary skill in the art to duplicate additional waste gas pre-heaters to further preheat the waste gas stream and/or additional waste gas stream. Note, the court held that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. (See *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960)). Likewise, Sato teaches a second waste gas pre-heater (44) is used to further heat the waste gas (from line 34) by the treated waste gas (line 40) emanating from the reactor 36 and the waste gas emanating (via line 37) from reactor (36) to the heat recovering device (38) is used as a heat source. Thus, it would have been obvious in view of Sato to one having ordinary skill in the art to modify the apparatus of Ohruai with a second waste gas pre-heater as taught by Sato in order to provide additional heating means to further preheat the waste gas stream prior feeding to the reactor. Ohruai in view of Sato teaches an oxygen device connected to the waste gas inlet (3) of the first pre-heater device (16) and a bypass oxygen supplied device (via lines 5 and 6) to the downstream of a first pre-heater but fail to disclose an oxygen device further connected to a region of the

apparatus between the waste gas outlet of the second pre-heater device and the inlet of the reactor (15). However, it would have been obvious that the duplication of a second pre-heater or additional heater(s) installed in series on line 4 immediately after the first pre-heater (16) as described above provides a configuration with an oxygen containing device between the waste gas outlet of the second preheater device and the inlet of the reactor (15). Ohuri also fails to disclose a temperature measuring means for treated gas emanating from said first waste gas pre-heater and a molecular oxygen-containing gas flow controller to adjust the amount of oxygen supplied to the waste gas outlet and waste gas inlet of the reactor. Brewer teaches a control system (Figure and Col. 4, lines 24-62) for treating waste gas with temperature measuring means (13) and gas analyzer (26) with feedback signal to the temperature controller (16) to regulate the amount of oxygen-containing gas (air, col. 4, lines 8-11) to the waste gas incinerator unit 1 (reactor). Thus, it would have been obvious in view of Brewer to one having ordinary skill in the art to modify the apparatus of the Ohuri with temperature measuring means as taught by Brewer in order to provide proper amount of oxygen-containing gas (air) to the reactor. Likewise, Lamberti also teaches temperature-measuring means (8) which controls the temperature in the combustion chamber (reactor) (Col. 3, lines 60-65) and oxygen controller 22 to control the waste gas outlet (exhaust gas) to obtain a stack with free oxygen (Col. 4, lines 27-54). Thus, it would have been obvious in view of Lamberti to one having ordinary skill in the art to modify the apparatus of Ohuri with temperature measuring means to control the temperature in the combustion chamber (reactor) and with oxygen controller to control or adjust the amount of oxygen

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discharged thru the stack (waste gas outlet). Regarding claim 17, it is obvious that the duplication of a second pre-heater installed on line 4 immediately after the first pre-heater (16) has a heat source without being passed through the heat recovery device (18). Regarding claim 19, it is conventional to provide variable drive fan to supply oxygen to the waste gas system and it would have been obvious to do so here to control the amount of supplied oxygen to the waste gas system.

Response to Arguments

Applicant's arguments filed 6/30/05 have been fully considered but they are not persuasive. With respect to Applicants' argument that neither Brewer nor Lamberti discloses or teaches the oxygen is introduced at two inlets of a preheater device and a region of the apparatus between the waste gas outlet of the second preheater device and the inlet of the reactor and the molecular oxygen-containing gas supplying device receives a signal from an oxygen concentrator detector disposed in a pipe on a treated gas outlet side of the first preheater, Examiner respectfully disagrees. Brewer teaches the temperature controller 16 with gas analyzer 26 and temperature sensor 13 at the outlet of the catalyst unit 35 and Lamberti teaches the oxygen device is used to control the amount of oxygen fed to the combustion chamber and/or reactor as described in the as described above. Examiner agrees that neither Brewer nor Lamberti discloses the detector is located after the first preheater and after the second preheater but before the inlet of the reactor, however, the oxygen detector of Brewer and/or Lamberti provide proper oxygen amount and temperature control in the combustion chamber and/or

reactor and Ohuri discloses the preheater(s) upstream of the reactor. Both Brewer and Lamberti teaches a feedback controller with gas analyzer and oxygen analyzer, respectively, positioned at a location where the waste gas has been treated and the only difference is the number of preheater(s) added to the system. The number of preheater(s) added to the system is merely a duplication of parts in the absence of unexpected results. Alternatively, Saito teaches a plurality of preheater(s) prior to the catalytic oxidation reactor 16 to facilitate in preheating the waste stream. The number of sampling points (oxygen detectors) between the preheaters is obvious matter of intended use. Note, there is no structural distinction between the applied references compared to the claimed invention except the manner of operation. Note, manner of operating the device does not differentiate apparatus claim from the prior art. See *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom P. Duong whose telephone number is (571) 272-2794. The examiner can normally be reached on 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Duong
August 7, 2005
TD

Tb


Glenn Caldarola
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